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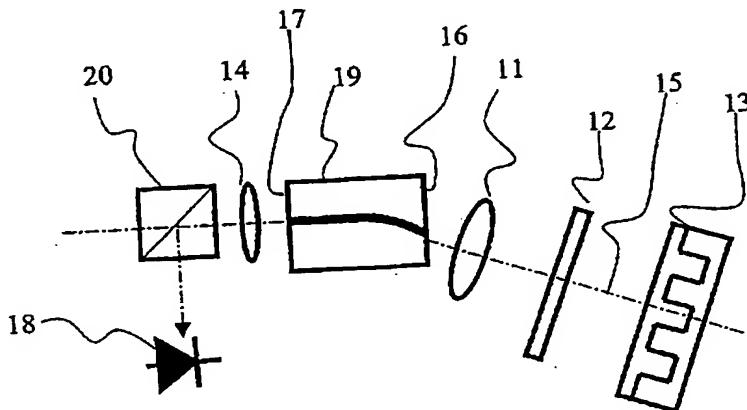
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(54) Title: WAVELENGTH CONTROL OF AN EXTERNAL-CAVITY TUNEABLE LASER



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(57) Abstract: The present invention relates to a method of controlling an external-cavity tuneable laser that comprises a wavelength-selective tunable mirror, in which wavelength selectivity is achieved by an electrical signal provided by an alternating voltage. The tunable mirror of the present invention comprises a liquid crystal material, a diffraction grating and a planar waveguide optically interacting with the grating. The diffraction grating and the waveguide form a resonant structure that reflects only a selected resonance wavelength from among all the other wavelengths impinging thereon. Depending on the amplitude of the voltage applied to the tunable mirror,  $V_{TM}$ , the tunable mirror reflects radiation only at a given wavelength  $\lambda_{TM}$ . The lasing output wavelength of the laser is selected to correspond to the resonance wavelength  $\lambda_{TM}$  of the tunable mirror. Accurate selection of the emission wavelength (frequency) of the tuneable laser by the tunable mirror can be derived from the analysis of the signal modulation induced by the AC voltage applied to the tunable mirror.

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